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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Tsugio Ambo

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EXAMINER

CHEN, XIAOLIANG

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,796	Applicant(s) AMBO ET AL.	
	Examiner Xiaoliang Chen	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-33 is/are pending in the application.
- 4a) Of the above claim(s) 23-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-29 is/are rejected.
- 7) ☒ Claim(s) 30-33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment

1. Acknowledgement is made of Amendment filed 04-19-10.
2. Claims 1-22 are canceled.
3. New Claims 23-33 are added.

Election/Restrictions

4. This application contains claims 23-25 drawn to an invention nonelected without traverse in the reply filed on 06-01-10. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Response to Arguments

5. Applicant's arguments with respect to the new claim 26 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rogers et al. (US5456608) in view Shimizu et al. (US4435741).

Re Claim 26 Rogers show and disclose

A joint box comprising:

a plurality of circuit boards (11, 13, 15, 17, fig. 3), each comprising:

a plate (insulating base plate of the circuit board),

Rogers does not explicitly disclose the insulating base plate of the circuit board being a resin plate, however, since the insulating plate of a circuit board made of resin is well known and most common in the printed circuit board art, therefore,. it would have been obvious to one having ordinary skill in the art at time the invention was made to use a well known and common resin circuit board in the electronic device of Rogers et al., in order to reduce the cost of the printed circuit board, and since such a modification would have involved the mere application of a known technique to a piece of prior art ready for improvement.

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Where a claimed improvement on a device or apparatus is no more than "the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement," the claim is unpatentable under 35 U.S.C. 103(a). Ex Parte Smith, 83 USPQ.2d 1509, 1518-19 (BPAI, 2007) (citing KSR v. Teleflex, 127 S.Ct. 1727, 1740, 82 USPQ2d 1385, 1396 (2007)).

Rogers further disclose

wherein the resin plate includes a plurality of terminal receiving holes (20, fig. 7), and welding holes (110, fig. 7, jumper rods extend from the remote board where they are soldered to the intended line trace through uncoated holes in intermediate boards, [col. 3, line 44]) provided adjacent to the plurality of terminal receiving holes;

a circuit pattern (22, fig. 7) that is punched out of a metal foil (metal foil of the circuit pattern 22, fig. 7) provided on said resin plate,

a plurality of metal tubular reception terminals (20a, fig. 3) which are provided in the plurality of terminal receiving holes (20, fig. 3) of the resin plate, wherein said tubular reception terminals include tab portions (tab portions of the plated hole 20a, show in both sides of the number 16, fig. 7) which are fixed on said circuit pattern by welding;

wherein a plurality of said circuit boards in which said tab portions are fixed to said circuit pattern are stacked (fig. 7) to communicate respectively at said plurality of terminal receiving holes (fig. 7); and

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wherein a stack of said circuit patterns (fig. 7) of said circuit boards are electrically connected to each other through said reception terminals by penetrating insertion terminals (40, fig. 7) into said reception terminals in said terminal receiving holes.

Rogers does not disclose

anchor pins projecting from a surface of the resin plate, the metal foil has pin receiving holes into which said anchor pins of the resin plate are inserted;

Shimizu teaches a device wherein

anchor pins (7a, 7b, fig. 4) projecting from a surface of the circuit board (7, fig. 4), the metal foil has pin receiving holes (6e, 6f, fig. 4) into which said anchor pins of the circuit board are inserted (fig. 4);

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the projections on the circuit board to insert in the receiving holes of the metal circuit patterns as taught by Shimizu in the electronic device of Rogers, in order to be able to make the metal circuit patterns more stably fixed and aligned on the circuit board.

9. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogers et al. in view of Shimizu as applied to claims 26 above, further in view of Hayashi et al. (US6995650).

Re Claim 27, Rogers and Shimizu disclose

The joint box according to claim 26,

Rogers and Shimizu do not disclose

the circuit boards include protrusions and depressions and are stacked by clamping corresponding protrusions and depressions on one another.

Hayashi teaches a device wherein

the circuit boards include protrusions (positioning protrusions 11b, fig. 5) and depressions (positioning holes 23, fig. 5) and are stacked by clamping corresponding protrusions and depressions one another (fig. 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the positioning protrusions and positioning holes as taught by Hayashi in the circuit boards of the electronic device of Rogers et al., in order to properly and easily align the positions of the stacked circuit boards in the electronic device.

Re Claim 28, Rogers show and disclose

The joint box according to claim 27, wherein said insertion terminals comprise a first pin-shaped inserting end (49, fig. 7) and a second connecting terminal end (47, fig. 7).

10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rogers et al. in view of Shimizu and Hayashi et al. as applied to claims 28 above, further in view of Eck (US4867691).

Re Claim 29, Rogers, Shimizu and Hayashi disclose

The joint box according to claim 28,
Rogers, Shimizu and Hayashi do not disclose

the inserting end has a rectangular cross section.

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Eck teaches a device wherein

the inserting end has a rectangular cross section (The pin having a rectangular cross section but it is to be understood that the pin may have a circular, square or other configuration, [col. 6, line 25]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the inserting pin with a rectangular cross section as taught by Eck in the electronic device of Rogers, since Eck states that the inserting pin could have a circular, square, rectangular or other configuration (cited from Eck) [col. 6, line 25].

Allowable Subject Matter

11. Claims 30-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 30 and all claims dependent thereof are allowable over the art of record because the prior art does not teach or suggest that a module or an apparatus with the combination including

wherein said insertion terminals are secured to at least one block body comprising electrically insulating synthetic resin by fixing middle portions of the insertion terminals between the inserting ends and connecting ends to fitting

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holes formed in said block body, and wherein said block body is placed on one surface of the stack of circuit boards to simultaneously insert said inserting ends of the insertion terminals into said terminal receiving holes formed in the circuit boards.

Claim 31 and all claims dependent thereof are allowable over the art of record because the prior art does not teach or suggest that a module or an apparatus with the combination including,

wherein said insertion terminals are secured to at least one block body comprising electrically insulating synthetic resin by fixing middle portions of the insertion terminals between the inserting ends and connecting ends to fitting holes formed in said block body, and wherein said block body is placed on one surface of the stack of circuit boards to simultaneously insert said inserting ends of the insertion terminals into said terminal receiving holes formed in the circuit boards.

The aforementioned limitations in combination with all remaining limitations of the respective claims are believed to render said claims 30, 31 and all claims dependent thereof patentable over art of record.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US-20010048492 US-3688248 US-4333233 US-4487463 US-4641426 US-4769907 US-4775326 US-4948375 US-5373626.

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12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiaoliang Chen whose telephone number is (571)272-9079. The examiner can normally be reached on 8:00-5:00 (EST), Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinhee Lee can be reached on 571-272-1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jinhee J Lee/
Supervisory Patent Examiner, Art Unit 2841

Xiaoliang Chen
Examiner
Art Unit 2841